

Attorney Docket

Please change the attorney's docket number used for communication in this application from "CGNE-119-2US", to --15619/03--.

Pending Claims

Claims 3, 4, 5, 9, 10 and 11 are pending in the application. The remaining Claims are canceled by this amendment.

Amendments

Claims 1 and 2 are canceled and the remaining claims have been amended to depend from Claim 3. Claim 3 now recites a DNA sequence encoding a VDE protein having a molecular weight of approximately 43 kilodaltons which is recognized by a polyclonal antibody prepared against a peptide comprising the amino acid sequence VDALKTCACLLK. Support for the amendment to Claim 3 is found in the specification at page 21 in the last full paragraph, and in the paragraph spanning pages 21 and 22.

The Invention

The invention provides novel violaxanthin de-epoxidase (VDE) genes of several diverse plant species, methods for isolating other VDE genes based on the homologies of the exemplified species, and a method for transforming plants to affect expression of VDE, zeaxanthin and antheraxanthin levels, and also sensitivity of transformed plants to light.

35 U.S.C. § 112, first paragraph rejection

Claims 1-2, 4, 8-9, and dependent claims 6-7, 10-15 were rejected under 35 U.S.C. § 112, first paragraph, as the disclosure is allegedly enabling only for claims limited to the exemplified VDE sequences. This rejection is traversed as follows.

In the Office Action it is alleged that the specification teaches only the use of VDE sequences disclosed in figures 1-3, namely, lettuce, tobacco and *Arabidopsis* cDNAs of the VDE gene. As noted in the specification in Example 3, in each instance where a plant genome was tested, the sequences of plant VDE genes were obtainable by a method according to Claim 3 as amended, where the VDE protein is recognized by a polyclonal antibody prepared against a peptide comprising the amino acid sequence VDALKTCACLLK, (taken from the N-terminal region of the tobacco VDE gene.) Additionally, each VDE protein was discovered to have a molecular weight of approximately 43 kilodaltons.

Claim 3 now recites these limitations, which are very clearly drawn from the specification and exemplified in the specification. Applicants have described the VDE genes of three phylogenetically diverse plant species, and have also described the method by which the skilled artisan can obtain other genes, if necessary, from other plants. Further support for the claim language is found in Figure 4, which highlights the similarity of the highly homologous VDE genes of these species, as well as the disclosure found from the last paragraph of page 7 through page 10, where mechanisms are described in detail whereby similarities of the sequences disclosed in the application can be used to obtain other sequences.

Given this description, the matter of using the disclosed sequences in cloning and isolation techniques to obtain other related VDE as claimed is clearly within the level of ordinary skill in the art. The case cited in the office action, *University of California v. Eli Lilly and Co.*, was a different situation, as in the present application the Applicants have provided much more than a mere process for obtaining cDNA and a description of a protein. They have provided three related cDNA sequences and a description of significant features of those sequences useful in cloning strategies.

Claims 1-2 and 4-15 are also rejected for the reason that the specification is allegedly only enabling for expression of sequences disclosed in the specification and only

for tobacco plants. Applicants note that the claims now recite isolation using antibodies prepared from the peptide comprising the amino acid sequence VDALKTCACLLK, taken from original Claim 3, and for this reason the rejection should be moot.

For all of the above reasons, it is submitted that the rejections under § 112, first paragraph should be withdrawn.

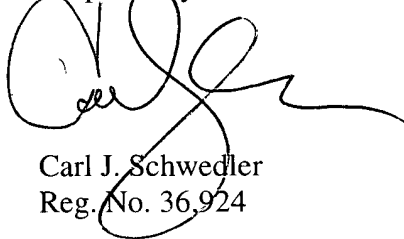
35 U.S.C. § 112, second paragraph rejection

The amendment to cancel Claims 1 and 2 should obviate this rejection.

CONCLUSION

It is respectfully submitted that the instant application is now in condition for allowance and Applicants request timely notice to this effect. The Examiner is invited to contact the undersigned by telephone at (530) 792-2265 if in the opinion of the Examiner it would be useful to the prosecution of this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Carl J. Schwedler', with a large, stylized flourish extending to the right.

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